

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C. 20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 27 September 1999 (27.09.99)	
International application No. PCT/GB99/00151	Applicant's or agent's file reference P/61365/EO
International filing date (day/month/year) 18 January 1999 (18.01.99)	Priority date (day/month/year) 06 February 1998 (06.02.98)
Applicant LANGDON, Roger, Martin	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:02 September 1999 (02.09.99)☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer C. Carrié Telephone No.: (41-22) 338.83.38
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Application No: GB 9900762.7  
Claims searched: All

Examiner: C R Brain  
Date of search: 18 May 1999

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): H4D

Int Cl (Ed.6): G01S; G01H

Other: Online: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	US5504719 (Jacobs)	
A	US5424749 (Richmond)	

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.  
& Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.  
E Patent document published on or after, but with priority date earlier than, the filing date of this application.

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

GEC Patent Department  
Waterhouse Lane  
Chelmsford  
Essex CM1 2QX  
GRANDE BRETAGNE

RM	RM
AF	26.02
16 MAR 2000	
FOREIGN	PC
Rei	

## PCT

### NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

Date of mailing (day/month/year) 14.03.2000			
Applicant's or agent's file reference P/61365/EO	<b>IMPORTANT NOTIFICATION</b>		
International application No. PCT/GB99/00151	<table border="1" style="width: 100%;"> <tr> <td>International filing date (day/month/year) 18/01/1999</td> <td>Priority date (day/month/year) 06/02/1998</td> </tr> </table>	International filing date (day/month/year) 18/01/1999	Priority date (day/month/year) 06/02/1998
International filing date (day/month/year) 18/01/1999	Priority date (day/month/year) 06/02/1998		
Applicant MARCONI ELECTRONIC SYSTEMS LIMITED et al.			

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  De Caemel, J-M  Tel. +49 89 2399-2557
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# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P/61365/EO</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/GB99/00151</b>	International filing date ( <i>day/month/year</i> ) <b>18/01/1999</b>	Priority date ( <i>day/month/year</i> ) <b>06/02/1998</b>
International Patent Classification (IPC) or national classification and IPC <b>G01H9/00</b>		
Applicant <b>MARCONI ELECTRONIC SYSTEMS LIMITED et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 8 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  <b>02/09/1999</b>	Date of completion of this report  <b>14.03.2000</b>
Name and mailing address of the international preliminary examining authority:   <b>European Patent Office</b> <b>D-80298 Munich</b> <b>Tel. +49 89 2399 - 0 Tx: 523656 epmu d</b> <b>Fax: +49 89 2399 - 4465</b>	Authorized officer  <b>Coda, R</b>  Telephone No. <b>+49 89 2399 2802</b>  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

09/601530  
428 Recd PCT/PTO 02 AUG 2000  
International application No. PCT/GB99/00151

**I. Basis of the report**

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

**Description, pages:**

1-3,6-20 as originally filed  
4,5,5a with telefax of 11/02/2000

**Claims, No.:**

1-22 with telefax of 11/02/2000

**Drawings, sheets:**

1/2,2/2 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.  
☒ claims Nos. 11, 22.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB99/00151

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 11, 22 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims 4 - 10, 15 - 21
	No:	Claims 1 - 3, 12 - 14
Inventive step (IS)	Yes:	Claims 4 - 10, 15 - 21
	No:	Claims
Industrial applicability (IA)	Yes:	Claims 1 - 10, 12 - 21
	No:	Claims

**2. Citations and explanations**

**see separate sheet**

**Prior Art**

Reference is made to the following document:

D1: US-A-5 424 749 (RICHMOND RICHARD D) 13 June 1995

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. Contrary to the requirements of Rule 6.2(a) PCT, claims 11 and 22 rely on reference to the drawings.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The subject-matter of claims 1 and 12 is not new (Art. 33(2) PCT), the reasons being as follows:
  - 1.1 With respect to the disclosure of the document D1, it is generally noted that the document D1 discloses a remote sounds detector to determine the presence of acoustic signals. In fact, the document D1 describes an apparatus to detect vibrating targets either operating or in quiescent status (see e.g. column 3, lines 44 to 47), like battle tanks or air crafts (see e.g. column 4, line 23). Moreover, the document D1 discloses the possibility of remotely locating these targets, that is when the separation distance between detector and target extends into the tens of kilometres (see e.g. column 4, lines 3 to 6).

It is then implicitly disclosed that the frequency spectrum of sound spans from 20 Hz to 20 KHz. The document D1 discloses the possibility of detecting targets vibrating at frequencies of 20, 50 and 85 Hz (see e.g. column 7, lines 36). In particular, the targets may also have different number of frequencies (see e.g. column 7, lines 66 to 69), this means that the apparatus disclosed in D1 is also able to detect targets emitting in the infrasound region (i.e. at frequencies less than 10 Hz), as shown in Figure 4.

1.2 With respect to the independent claims 1 and 12 the document D1 discloses the following features:

- a transmitter producing a train of pulse to pulse coherent signals into a region of the atmosphere as a beam (see e.g. column 3, lines 65 to 68 and column 4, line 58 to 61);
- a receiver getting the resultant signals generating from the interaction of the incoming beam with the acoustic signals in the region of the atmosphere (see e.g. column 5, lines 9 to 12);
- a detector (see e.g. column 6, lines 26 to 31) connected to the receiver able to determine the presence of the acoustic signal from the phase difference between successive resultant signals (see e.g. column 7, lines 6 and 7, column 9 lines 7 to 18).

2. The dependent claims 2, 3, 13 and 14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty, the reasons being as follows:

- claims 2 and 13: the calculation of phase difference between two successive pairs of samples is disclosed in D1 (see e.g. column 7, lines 6 and 7, column 9 lines 7 to 18).
- claims 3 and 14: the use of a laser beam is disclosed in document D1 (see e.g. column 3, line 68, column 4 line 58).

3. The dependent claims 4 to 10 and 15 to 21 contain features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows:

- \* Art. 33(2) PCT: the features of directing a beam over possible sound sources (see claims 4 and 15), including an interferometer (see claims 5 and 16), detecting and producing an output signal corresponding to changes between each interference pattern (see claims 6 and 17), including a sampler and a comparator (see claims 7 and 18), using an accumulator (see claims 8 and 19), using a loudspeaker (see claims 9 and 20) and of detecting the source position from the joining of two circles (see claims 10 and 21) are not disclosed in the available prior art. Therefore, dependent claims 4 to 10 and 15 to 21 are new.



- \* Art. 33(3) PCT: there is no hint in document D1, which is considered to be the closest prior art, nor in the other available prior art for the skilled person to direct a beam over possible sound sources (see claims 4 and 15), include an interferometer (see claims 5 and 16), detect and produce an output signal corresponding to changes between each interference pattern (see claims 6 and 17), include a sampler and a comparator (see claims 7 and 18), use an accumulator (see claims 8 and 19), use a loudspeaker (see claims 9 and 20) and to detect the source position from the joining of two circles (see claims 10 and 21) in order to improve the system performance and in particular to increase the spatial resolution.

-4-

by the observers receiver.

Prior art document US 5,424,749 (Richmond) teaches a remote sound detector comprises a transmitter operably arranged to produce a train of signals and to transmit the signals into a region of atmosphere as a beam and a receiver operably arranged to receive resultant signals from the region of atmosphere. This document also teaches a method of remote sound detecting comprises transmitting a train of signals into a region of atmosphere as a beam and receiving resultant signals from the region of atmosphere.

It is an object of the present invention to obviate or mitigate the problems associated with the prior art.

According to a first aspect of the present invention the transmitter produces a train of pulse to pulse coherent signals, the receiver is arranged to receive any resultant signals from the intersection of the beam with acoustic signals in the region of the atmosphere and a detector is operably connected to the receiver and arranged to determine the presence of acoustic signals from the phase difference between successive resultant signals.

The detector may determine phase differences between immediate successive pairs of resultant signals.

A laser source may be operably arranged to produce a laser beam and the laser beam may be modulated by a modulator to produce the train of signals.

The beam may be directed to a region in the atmosphere above possible sources of acoustic

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signals hidden from a field of view of an observer.

5 An interferometer may be operably arranged to provide an interference pattern between the laser beam and each resultant signal. A photoreceiver may be operably arranged to detect and produce an output signal corresponding to changes in each interference pattern. A sampler may be operably arranged to sample the output signals from the photoreceiver and a comparator may be operably arranged to compare output signals from immediate successive pairs of outputs from the photoreceiver to produce a result. An accumulator may be operably arranged to accumulate each result and a loudspeaker may be operably arranged to reproduce  
10 an audible output of the result.

The sampler may be operably arranged to sample the output signals from the photoreceiver at different ranges to the regions and a processor may be arranged to determine the curvature of an acoustic signal wavefront from a possible source, to determine a first circle from the  
15 wavefront substantially perpendicular to the beam which intersects the acoustic signal, to calculate a second circle as for the first circle with a beam directed to a different region and to locate the possible source of acoustic signal as the point that the first and second circles join.

20 According to a second aspect of the present invention the method of remote sound detecting including transmitting a train of pulse to pulse coherent signals into the region of the atmosphere, receiving any resultant signals from the intersection of the beam with acoustic signals in the region of the atmosphere, and determining the presence of acoustic signals from the phase difference between successive resultant signals.

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+49 89 GB 009900151

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The method may also include determining the phase difference between immediate successive pairs of resultant signals.

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CLAIMS

1. A remote sound detector (10), comprising

a transmitter operably arranged to produce a train of signals (18) and to transmit the signals (18) into a region of atmosphere (21) as a beam (20) and

a receiver (24) operably arranged to receive resultant signals (23) from the region of atmosphere (21), characterised in that,

the transmitter (19) produces a train of pulse to pulse coherent signals (18),

the receiver (24) is arranged to receive any resultant signals (23) from the intersection of the beam with acoustic signals in the region of the atmosphere (21), and

a detector (29) is operably connected to the receiver (24) and arranged to determine the presence of acoustic signals from the phase difference between successive resultant signals (23).

2. A remote sound detector (10), as in Claim 1, wherein the detector (29) determines phase differences between immediate successive pairs of resultant signals (23).

3. A remote sound detector (10), as in Claim 1 or 2, wherein a laser source (11) is operably arranged to produce a laser beam (12) and the laser beam (12) is modulated

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by a modulator (14) to produce the train of signals (18).

4. A remote sound detector (10), as in any preceding claim, wherein the beam (20) is directed to a region in the atmosphere (21) above possible sources of acoustic signals hidden from a field of view of an observer.
5. A remote sound detector (10), as in Claims 3 or 4, wherein an interferometer (26) is operably arranged to provide an interference pattern (28) between the laser beam (12) and each resultant signal (23).
6. A remote sound detector (10), as in Claim 5, wherein a photoreceiver (29) is operably arranged to detect and produce an output signal (30) corresponding to changes in each interference pattern (28).
7. A remote sound detector (10), as in Claim 6, wherein a sampler (31) is operably arranged to sample the output signals (30) from the photoreceiver (29) and a comparator (34) is operably arranged to compare output signals (23) from immediate successive pairs of outputs from the photoreceiver (29) to produce a result (35).
8. A remote sound detector (10), as in Claim 7, wherein an accumulator (36) is operably arranged to accumulate each result (35).
9. A remote sound detector (10), as in Claim 7, wherein a loudspeaker (38) is operably arranged to reproduce an audible output of the result (35).

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10. A remote sound detector (10), as in Claim 6, wherein a sampler (31) is operably arranged to sample the output signals (30) from the photoreceiver (29) at different ranges to the regions (21) and a processor is arranged to determine the curvature of an acoustic signal wavefront from a possible source, to determine a first circle from the wavefront substantially perpendicular to the beam (20) which intersects the acoustic signal, to calculate a second circle as for the first circle with a beam (20) directed to a different region (21) and to locate the possible source of acoustic signal as the point that the first and second circles join.
11. A remote sound detector (10) substantially as described with reference to the accompanying drawings.
12. A method of remote sound detecting, comprising  
  
transmitting a train of signals (18) into a region of atmosphere (21) as a beam (20) and receiving resultant signals (23) from the region of atmosphere (21),  
  
characterised by,  
  
including transmitting a train of pulse to pulse coherent signals (18) into the region of the atmosphere (21),  
  
receiving any resultant signals (23) from the intersection of the beam (20) with acoustic signals in the region of the atmosphere (21), and

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determining the presence of acoustic signals from the phase difference between successive resultant signals (23).

13. A method, as in Claim 12, including determining the phase difference between immediate successive pairs of resultant signals (23).
14. A method, as in Claims 12 or 13, including producing the train of signals (18) by producing a laser beam (12) and modulating the laser beam (12).
15. A method, as in Claims 12 to 15, including directing the beam (20) to a region in the atmosphere (21) above possible sources of acoustic signals hidden from a field of view of an observer.
16. A method, as in Claims 14 or 15, including providing an interference pattern (28) between the laser beam (12) and each resultant signal (23).
17. A method, as in Claim 16, including detecting and producing an output signal (30) corresponding to changes between each interference pattern (28) .
18. A method, as in Claim 17, including sampling the output signal (30) and comparing output signals (30) from immediate successive pairs of output signals (30) and producing a result (35).
19. A method, as in Claim 18, including accumulating each result (35).



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20. A method, as in Claim 18, including providing an audible output of the result (35).
21. A method, as in Claim 17, including sampling the output signal (30) at different ranges to the regions (21), determining the curvature of an acoustic signal wavefront from a possible source, determining a first circle from the wavefront substantially perpendicular to the beam (20) which intersects the acoustic signal, calculating a second circle as for the first circle with a beam (20) directed to a different region (21) and locating the possible source of acoustic signal as the point that the first and second circles join.
22. A method of remote sound detecting substantially as described with reference to the accompanying drawings.

## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF RECEIPT OF  
RECORD COPY

(PCT Rule 24.2(a))

To:

HOSTE, Colin, Francis  
GEC Patent Dept.  
Waterhouse Lane  
Chelmsford  
Essex CM1 2QX  
ROYAUME-UNI

RM	RM
For	For
25 MAR 1999	

<b>Date of mailing</b> (day/month/year) 18 February 1999 (18.02.99)	<b>IMPORTANT NOTIFICATION</b>
<b>Applicant's or agent's file reference</b> P/61365/EO	<b>International application No.</b> PCT/GB99/00151

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

**MARCONI ELECTRONIC SYSTEMS LIMITED (for all designated States except US)**  
**LANGDON, Roger, Martin (for US)**

International filing date : 18 January 1999 (18.01.99)

Priority date(s) claimed : 06 February 1998 (06.02.98)

Date of receipt of the record copy  
by the International Bureau : 12 February 1999 (12.02.99)

List of designated Offices :

AP : GH, GM, KE, LS, MW, SD, SZ, UG, ZW

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW

**ATTENTION**

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase
- ☒ confirmation of precautionary designations
- ☒ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

<p><b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 740.14.35</p>	<p>Authorized officer:</p> <p>P. Gonzalez <i>P. Gonzalez</i></p> <p>Telephone No. (41-22) 338.83.38</p>
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## INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE

The applicant is reminded that the "national phase" must be entered before each of the designated Offices indicated in the Notification of Receipt of Record Copy (Form PCT/IB/301) by paying national fees and furnishing translations, as prescribed by the applicable national laws.

The time limit for performing these procedural acts is **20 MONTHS** from the priority date or, for those designated States which the applicant elects in a demand for international preliminary examination or in a later election, **30 MONTHS** from the priority date, provided that the election is made before the expiration of 19 months from the priority date. Some designated (or elected) Offices have fixed time limits which expire even later than 20 or 30 months from the priority date. In other Offices an extension of time or grace period, in some cases upon payment of an additional fee, is available.

In addition to these procedural acts, the applicant may also have to comply with other special requirements applicable in certain Offices. **It is the applicant's responsibility** to ensure that the necessary steps to enter the national phase are taken in a timely fashion. Most designated Offices do not issue reminders to applicants in connection with the entry into the national phase.

**For detailed information about the procedural acts to be performed to enter the national phase before each designated Office, the applicable time limits and possible extensions of time or grace periods, and any other requirements, see the relevant Chapters of Volume II of the PCT Applicant's Guide. Information about the requirements for filing a demand for international preliminary examination is set out in Chapter IX of Volume I of the PCT Applicant's Guide.**

GR and ES became bound by PCT Chapter II on 7 September 1996 and 6 September 1997, respectively, and may, therefore, be elected in a demand or a later election filed on or after 7 September 1996 and 6 September 1997, respectively, regardless of the filing date of the international application. (See second paragraph above.)

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

## CONFIRMATION OF PRECAUTIONARY DESIGNATIONS

This notification lists only specific designations made under Rule 4.9(a) in the request. It is important to check that these designations are correct. Errors in designations can be corrected where precautionary designations have been made under Rule 4.9(b). The applicant is hereby reminded that any precautionary designations may be confirmed according to Rule 4.9(c) before the expiration of 15 months from the priority date. If it is not confirmed, it will automatically be regarded as withdrawn by the applicant. There will be no reminder and no invitation. Confirmation of a designation consists of the filing of a notice specifying the designated State concerned (with an indication of the kind of protection or treatment desired) and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.

## REQUIREMENTS REGARDING PRIORITY DOCUMENTS

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before that date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau or if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity to furnish the priority document within a time limit which is reasonable under the circumstances.

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit is the filing date of the earliest application whose priority is claimed.

# PATENT COOPERATION TREATY

## PCT

### NOTIFICATION CONCERNING SUBMISSION OR TRANSMITTAL OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

HOSTE, Colin, Francis  
GEC Patent Dept.  
Waterhouse Lane  
Chelmsford  
Essex CM1 2QX  
ROYAUME-UNI

Date of mailing (day/month/year) <b>08 March 1999 (08.03.99)</b>	
Applicant's or agent's file reference <b>P/61365/EO</b>	<b>IMPORTANT NOTIFICATION</b>
International application No. <b>PCT/GB99/00151</b>	International filing date (day/month/year) <b>18 January 1999 (18.01.99)</b>
International publication date (day/month/year) <b>Not yet published</b>	Priority date (day/month/year) <b>06 February 1998 (06.02.98)</b>
Applicant <b>MARCONI ELECTRONIC SYSTEMS LIMITED et al</b>	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An **asterisk(\*)** appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
4. The **letters "NR"** appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
06 Febr 1998 (06.02.98)	9802688.3	GB	19 Febr 1999 (19.02.99)

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

for P. Gonzalez

Telephone No. (41-22) 338.83.38



PCT

**NOTICE INFORMING THE APPLICANT OF THE  
COMMUNICATION OF THE INTERNATIONAL  
APPLICATION TO THE DESIGNATED OFFICES**

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

HOSTE, Colin, Francis  
GEC Patent Dept.  
Waterhouse Lane  
Chelmsford  
Essex CM1 2QX  
ROYAUME-UNI

Foreign	PC
20 AUG 1999	
AF	24

Date of mailing (day/month/year) 12 August 1999 (12.08.99)		IMPORTANT NOTICE	
Applicant's or agent's file reference P/61365/EO			
International application No. PCT/GB99/00151	International filing date (day/month/year) 18 January 1999 (18.01.99)	Priority date (day/month/year) 06 February 1998 (06.02.98)	
Applicant MARCONI ELECTRONIC SYSTEMS LIMITED et al			

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:  
AU,CN,EP,IL,JP,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:  
AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CU,CZ,DE,DK,EA,EE,ES,FI,GB,GE,GH,GM,HR,HU,ID,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,UA,UG,UZ,VN,YU,ZW  
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).
3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 12 August 1999 (12.08.99) under No. WO 99/40398

**REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)**

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a **demand for international preliminary examination** must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

**REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))**

If the applicant wishes to proceed with the international application in the **national phase**, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38



PCT

# INFORMATION CONCERNING ELECTED OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

From the INTERNATIONAL BUREAU

To:

HOSTE, Colin, Francis  
GEC Patent Dept.  
Waterhouse Lane  
Chelmsford  
Essex CM1 2QX  
ROYAUME-UNI

RM RM	
FOREIGN	PC
7. OCT. 1999	
AF	03/10/99
→ Rie	

Date of mailing (day/month/year) 27 September 1999 (27.09.99)		
Applicant's or agent's file reference P/61365/EO		
<b>IMPORTANT INFORMATION</b>		
International application No. PCT/GB99/00151	International filing date (day/month/year) 18 January 1999 (18.01.99)	Priority date (day/month/year) 06 February 1998 (06.02.98)
Applicant MARCONI ELECTRONIC SYSTEMS LIMITED et al		

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, SD, SZ, UG, ZW

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BG, BR, CA, CN, CZ, DE, GB, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AL, AM, AT, AZ, BA, BB, BY, CH, CU, DK, EE, ES, FI, GE, GH, GM, HR, HU, ID, IN, IS,  
KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MW, MX, PT, SD, SG, SI, SL, TJ, TM, TR, TT,  
UA, UG, UZ, VN, YU, ZW

3. The applicant is reminded that he must enter the "national phase" **before the expiration of 30 months from the priority date** before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed **until 31 months from the priority date** for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

C. Carrié

Telephone No. (41-22) 338.83.38

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P/61365/E0</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 99/ 00151</b>	International filing date (day/month/year) <b>18/01/1999</b>	(Earliest) Priority Date (day/month/year) <b>06/02/1998</b>
Applicant  <b>MARCONI ELECTRONIC SYSTEMS LIMITED et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1  
☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

T/GB 99/00151

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G01H9/00 G01S17/50 G01S17/88

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G01S G01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 424 749 A (RICHMOND RICHARD D) 13 June 1995	1, 2, 12, 13
Y	see abstract; figure 5 see column 3, line 39 - line 42 see column 4, line 58 - line 67 ---	3, 14
X	US 5 379 270 A (CONNOLLY GEORGE C) 3 January 1995 see abstract; figure 1 see column 5, line 14 - line 22 see column 5, line 50 - line 53 ---	1, 2, 12, 13
Y	EP 0 432 887 A (LITTON SYSTEMS INC) 19 June 1991 see abstract see column 2, line 5 - line 8 -----	3, 14

☐ Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 April 1999

Date of mailing of the international search report

28/04/1999

Name and mailing address of the ISA

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NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer


Niemeijer, R



# INTERNATIONAL SEARCH REPORT

In  on patent family members

International Application No

/GB 99/00151

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5424749	A	13-06-1995	NONE	
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US 5379270	A	03-01-1995	NONE	
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EP 0432887	A	19-06-1991	US 4995720 A	26-02-1991
			AU 625478 B	09-07-1992
			AU 6220490 A	20-06-1991
			CA 2025008 A	13-06-1991
			JP 3252586 A	11-11-1991
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